

# CAT 4 RESOURCE DEVELOPMENT

Group 4-057

## UPCycle

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## **ABSTRACT**

UPCycle is a project which aims to teach children and teenagers to upcycle in hopes of sparking their interest in upcycling while simultaneously educating them on the importance of environmental protection. Our resource package consists of a website that hosts the following information: Why and How to protect the environment, Upcycled Products, Infographics, Videos (Tutorials and Animation), Online Lessons and Quizzes. All of our resources are 100% accessible on our website.

## **1 INTRODUCTION**

### **1.1 Rationale**

Climate Change is a pertinent issue and the effects of it are worsening with the passing of time. For example, according to the European Union's Copernicus Climate Change Service, in the Arctic, which has been warming at more than twice the global rate in recent decades, the expanse of sea ice shrank to its lowest level recorded for any July since 1979 due to climate change. This will not only cause accelerated heating but also result in higher sea levels which threatens people living in the coastal areas. To slow down the effects of climate change, we want to educate others to be eco friendly from an individual standpoint. For this to be done, people would have to actively practice the 3Rs. Furthermore, we feel that upcycling is more effective compared to just reusing as people will be more captivated by the hands-on approach of upcycling. Besides, upcycling provides a platform for individuals to put their creativity to use. We feel that upcycling brings much more to the table as it combines both reuse and recycle, therefore we decided to embark on this project

## **1.2 Objectives**

The objectives of UPCycle are to provide our target audience with information on how to upcycle through first hand experience and educate them on the importance of environmental protection through the 3Rs.

## **1.3 Target Audience**

Our target audience are youths of 7-18 years old. The reason for choosing this target audience was so as to cultivate the habit of environmental protection in people from a young age.

## **1.4 Resources**

This list of resources that we made comprises a website, infographics, upcycled products, videos, lesson presentation and quizzes.

Website:

[UPCycle Wix Site](#)



HOME Overview Environmental Protection Resources for Learning Online Lessons Environmental FUN Quiz Our References

Why we should protect the environment  
Protecting the environment  
How individuals can help

# What Environmental Protection ???



**Environmental Protection** involves individuals, governments and organisation working together to conserve natural resources and environment and also helps to repair damage already done to environment and slow down processes such as climate change

**What is Climate Change ?**

- It is the process in which the climate in certain regions in the world are changing such as higher temperatures (Global Warming)
- Climate Change is mainly caused by increased levels of carbon dioxide in the atmosphere but also caused by emission of other greenhouse gases

**CLIMATE CHANGE**

**800 MILLION PEOPLE.**  
11% of the world's population is currently vulnerable to climate change impacts such as droughts, floods, heat waves, extreme weather events and

HOME Overview Environmental Protection Resources for Learning Online Lessons Environmental FUN Quiz Our References

DIY Upcycled Products  
Infographics  
Videos

## WANT TO LEARN ABOUT ENVIRONMENTAL PROTECTION IN A FUN AND INTERACTIVE WAY? YOU'VE COME TO THE RIGHT PAGE !



### 3 FACTS ABOUT THE ENVIRONMENT AROUND THE WORLD

- 27,000 trees** are cut down every day so we can have Paper.
- Only **1%** of our planet's water supply can be used. 97% is ocean water and 2% is frozen solid in the Arctic, for now.
- An estimated **50** species inhabiting tropical forests become extinct annually, average of 137 species per day.

[Click the button below to access our DIY](#)

HOME Overview Environmental Protection Resources for Learning Online Lessons Environmental FUN Quiz Our References

*On the 21st of July 2020, Project UPCycle organised an online lesson for P3-P4 children at FaithActs.*

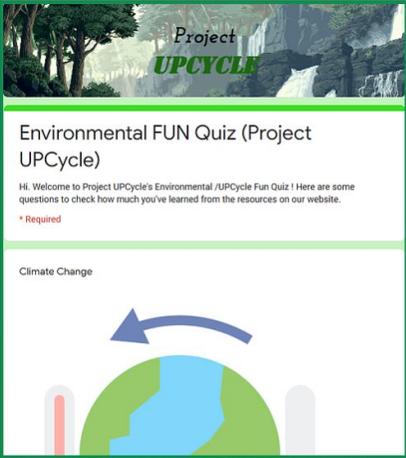


*We worked with Project Athena to coordinate our lessons with children under the KIDSLEAP Programme*



HOME Overview Environmental Protection Resources for Learning Online Lessons Environmental FUN Quiz Our References

Here is a **FUN** and short quiz that you can access to test your knowledge after learning about the environment through our resources :



Project  
**UPCYCLE**

Environmental FUN Quiz (Project UPCycle)

Hi. Welcome to Project UPCycle's Environmental /UPCycle Fun Quiz ! Here are some questions to check how much you've learned from the resources on our website.

\* Required

Climate Change



Click on the image above to access our Environmental

Archive of infographics:

[UPCycle Infographics](#)

# 8

## TIPS To Save Electricity At Home

There are many ways of saving electricity but here are some that we think is much more efficient

Here are some useful tips from Project Upcycle to help you save as much electricity and money as possible !



### 1 Turn off appliances when not in use

Turning off lights and electrical appliances can save electricity as a whole and even save more of your hard earned money.



### 2 Switching to LED light bulbs

LED bulbs consume much less electricity as compared to a standard fluorescent light bulb.

My family uses LED light bulbs for almost all the lights in the house. We use much less electricity as compared to before

Pang Yan Hern  
Project Upcycle Leader



Using 2-3 fans when sleeping gives me a much better sleeping experience!

Zhang Zhuoyang  
Project Upcycle Design Head



### 3 Use fan instead of air-con

The electricity consumption of 1 air conditioner is around 900 watts, while 1 fan only uses around 100 watts of power



### 4 Put computer to sleep when not in use

Computers can use up high amounts of electricity when it is still in active mode. Put them to sleep mode to prevent excess consumption of electricity.



I have recently upgraded my fridge from a 2 tick efficient to 5 tick efficient fridge. This has helped me to lower my electricity bills

Shen Yun Cong  
Project Upcycle's Friend



### 5 Choose energy efficient appliances

Similar to LED light bulbs, these appliances that usually have 4-5 tick efficiency ratings consume much less electricity than the standard version.



### 6 Reduce use of water heaters

Turn on the water heaters 3-5 minutes before a shower and off it immediately after a shower so to reduce the amount of excess electricity used to power this machine



### 7 Set air-con to temperature to above 25°C

Setting the air conditioner temperature to 25 ° C can save at least 20% of energy. Energy experts have shown that if you increase the AC temperature by only 2 degrees, you can reduce up to 30% in electricity bills.



### 8 Approach utility supplier to check for electricity leakages

Electrical leakages can waste high levels of electricity and is a health hazard to all members of the household.

I schedule yearly maintenance for my household appliances and wires with my energy supplier

Zhu Kun Yuan  
Project Upcycle Assistant



Stay safe and healthy  
Remember to reduce, reuse and recycle

Archive of Upcycled Products:

[UPCycle DIY Products](#)

## DIY *Upcycled* Product 3 (Difficulty: Medium)

### DIY Pencil Holder

Materials needed : Milk carton, scissors, tape, A4 (coloured) paper, an old/unwanted piece of cloth, rubber band

Step 1: Measure 10cm from the bottom of the milk carton with a ruler and mark it with a marker/pen/pencil



Step 2: Extend the line to all 4 sides of the milk carton. Try to make it as straight as possible



Click on the image to access our step by step guide for the DIY Upcycled Product 3 that is on Google Documents

Here are some of the pictures from our DIY Upcycled Pencil Holder

Archive of Videos:

[UPCycle Animation and Tutorial Videos](#)



2 REVIEW

- A Study on student Recycling Practices and Awareness of Green Products by ResearchGate shows that there are still a handful of people who are ignorant of the importance of recycling or who simply do not recycle. Hence, there is the need to educate people to protect the environment. Therefore lessons in our project package and video have allowed us to educate students and teach them the importance of environmental protection.

On the other hand, the construct in the aspect of practices that was at the level of the medium was on “yes” or “not really” and “not”. In term of frequency, 9 over 36 respondent which is 25% were “not really use” of recycle bin facilities. It can be seen from the answer given by the respondent KUO\_1 were she did not really use of recycling bin. While 11 respondent which is 31% not use of recycle bin in their daily life in campus. There are several reason given by respondent regarding why they not use and practice the recycle bin. From 36 of respondents that have been interviewed, only 16 respondent which is 44% use recycle bin facilities. And the rest from that use recycle bin because they have awareness in environment. Table 2 show the recycling practice in residential area.

- A research done by Penn State and Boston College found out that if there were more hands-on instructions on how to practice the 3Rs, people would be more likely to have environmentally friendly habits, hence we hope that our tutorial videos on upcycling various items would be able to spark people’s interest in upcycling.

"We found that the people who were shown ads that detailed product transformation were significantly more likely to recycle their scrap sheets of paper than the people who were shown the control recycling message that did not make transformation salient," said Winterich. "Interestingly, there was no difference in recycling rates between the groups who saw ads about products being turned into different products versus those showing products being turned into the same kinds of products."

### 3 METHODOLOGY

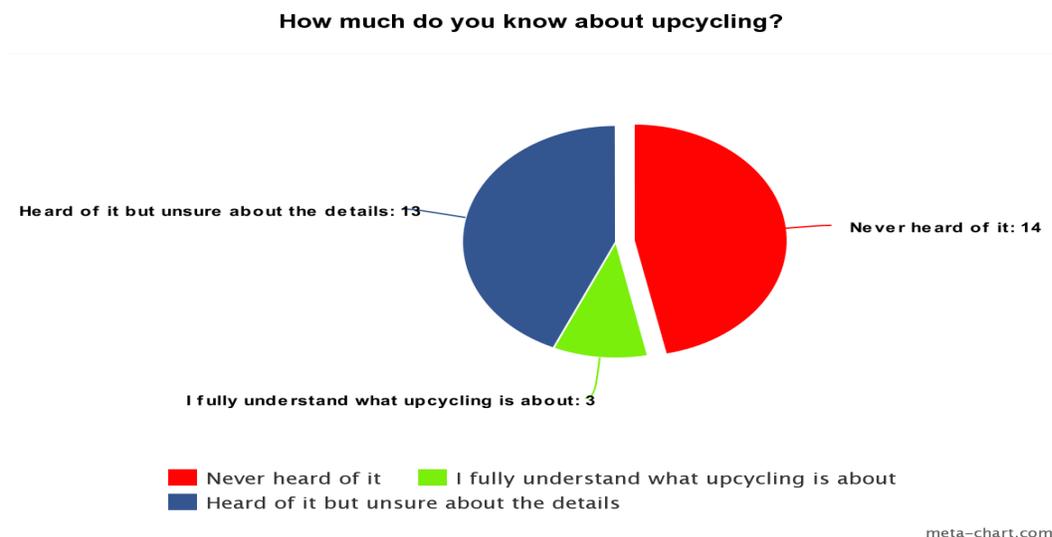
### 3.1 Needs Analysis

To ascertain the relevance of our project, we conducted a survey with 30 respondents. From our results, we found that many students did not understand the concept of upcycling and did not practice basic environmental protection habits such as recycling ; thus there is a need for our resource package.

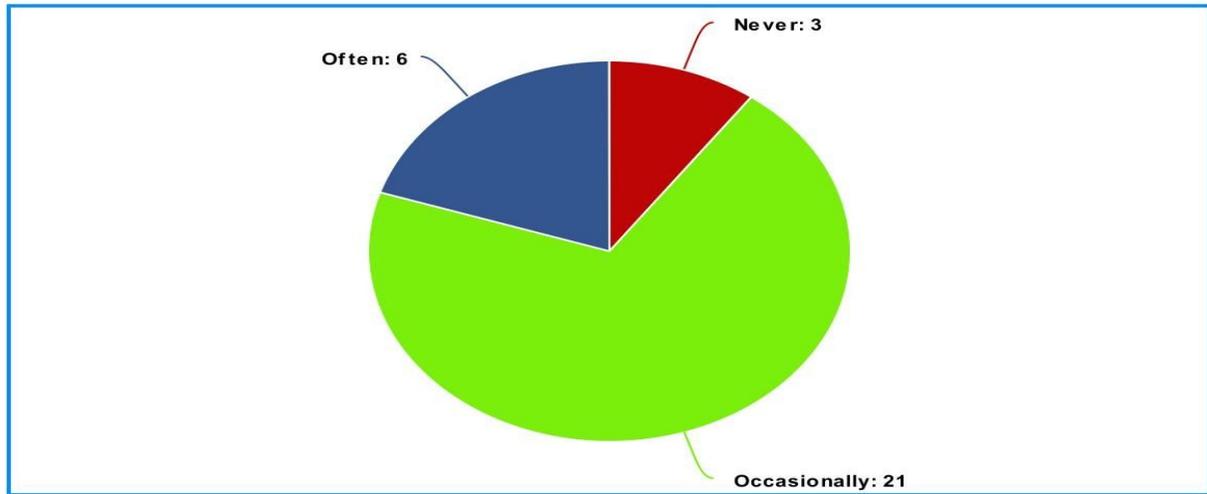
### 3.2 Survey Results

These were the key points that were reflected from our survey

- 90% of respondents were unsure as to what upcycling was
- 90% did not have the habit of recycling in their daily lives
- 67% of respondents have a wrong understanding of upcycling
- 96.7% think that global warming is indeed a pressing issue
- 96.7% are interested in learning about upcycling and how they can impact the environment
- The 4 most popular resources for our package were Upcycled Products (96.7%), Videos (86.7%), Infographics and Website (both 83.3%)



## How often do you recycle ?

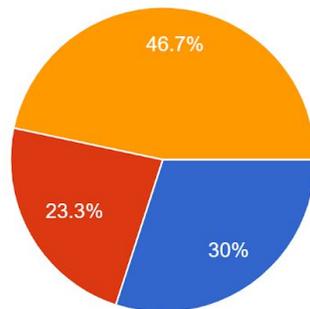


Never Occasionally Often

meta-chart.com

## What do you think upcycling is?

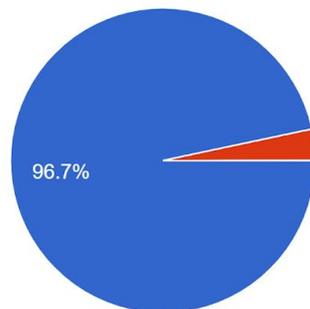
30 responses



- The process of transforming by-products, waste materials, useless, or unwanted products into new materials or products of better quality and environmental value
- The process of reusing an object continuously
- The process of converting non-recyclable materials into environmentally-friendly materials

## Do you think global warming is a pressing issue?

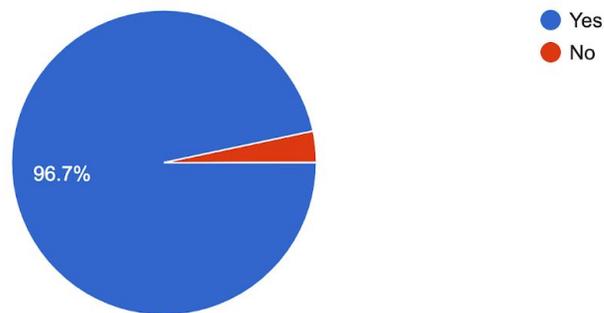
30 responses



- Yes
- No

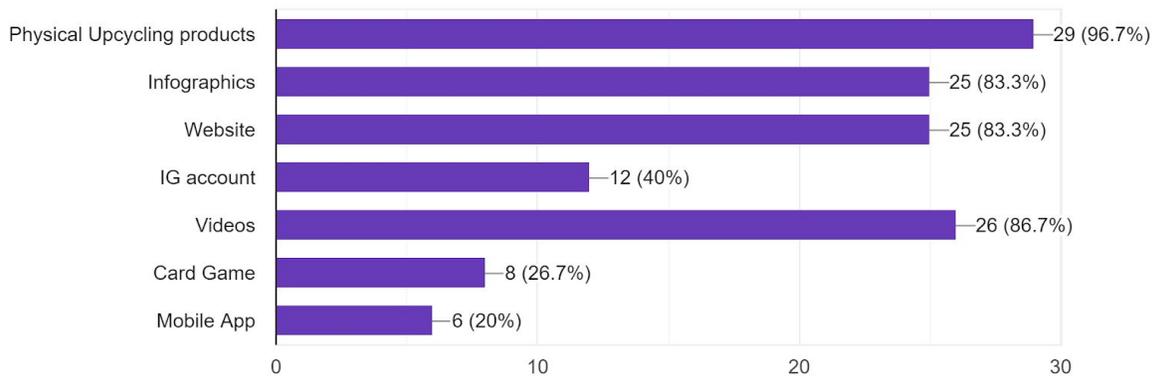
Are you keen to find out more on what upcycling is about and its environmental impacts?

30 responses



How would you like to learn about upcycling?

30 responses



### 3.3 Development of resources

The contents of our resource package was made possible using the following applications:

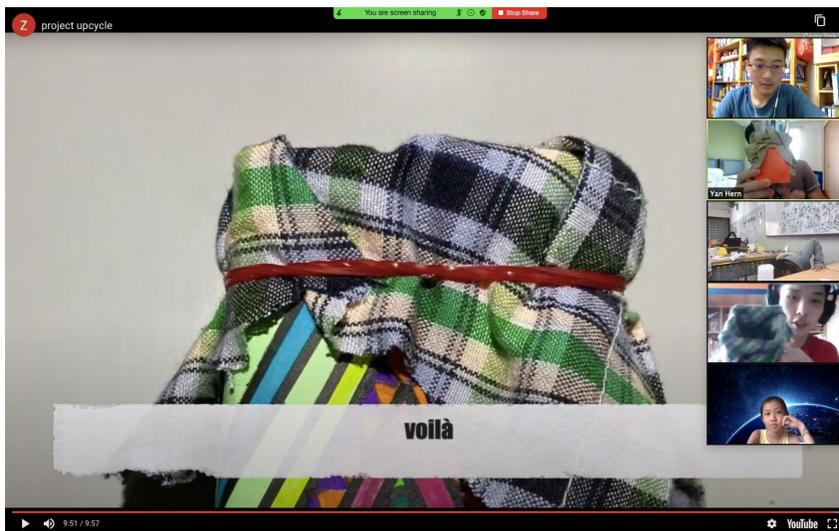
- Our website was made using Wix.com with external images and information under the reference tab of our website. We created a website so that all of our resources can be accessed from a common online platform

- Our infographics were made with PIKTOCHART using free images and icons that can be found on the design engine. Our infographics are colourful and neatly condensed which is perfect for visual learners.
- Our animation video was made using Powtoon with their free backgrounds and characters. The video is aesthetically pleasing and allows for information to be presented in a visual and auditory medium.
- We also recorded and edited our original DIY videos by recycling and reusing old materials to create a few products. Our videos are sorted by levels of difficulty so that our target audience can choose which tutorial to follow based on their skill level.
- For our Fun Quiz which is on our website and is accessible to everybody, it was done using Kahoot and Google Forms based on varying difficulties. The kahoot quiz is meant for primary school students while the google form is meant for secondary school students.

### **3.4.1 Pilot Test 1**

Although COVID-19 made it difficult for us to conduct pilot tests, we still stuck to our original plan of having hands-on activities as we felt that it would be the star of our project.

Our online lessons consisted of 2 sessions for 2 different groups of KIDSLEAP students, who were all in primary school. We allocated 1 hour for hands-on activities and 30 minutes for educating them. We used PowerPoint to present our resources to children and guide them to learn and created a Kahoot quiz to test their knowledge.



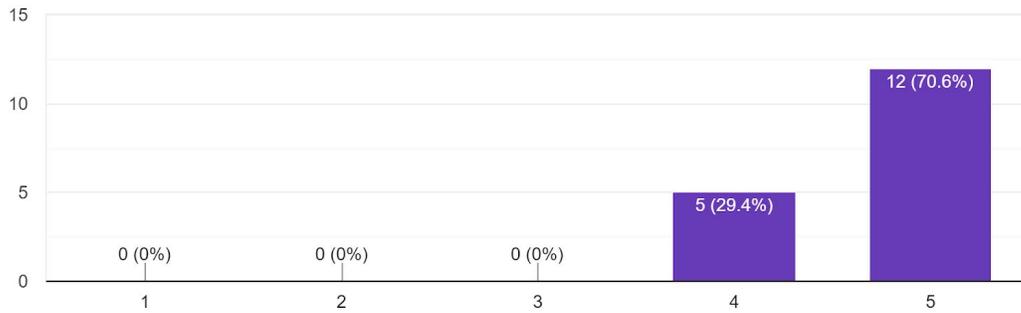
The feedback received was very positive and they enjoyed it very much. However, the person in charge stated that we could improve on our live demonstrations and our videos. We were able to make changes to the video so that it was easier to understand and we practiced to get used to doing live demonstrations before the second session started. Hence the second lesson was much smoother and we were able to complete the lesson on time.

### 3.4.2 Pilot Test 2

We sent our website link to primary and secondary school students and gathered feedback for our website interface through our survey

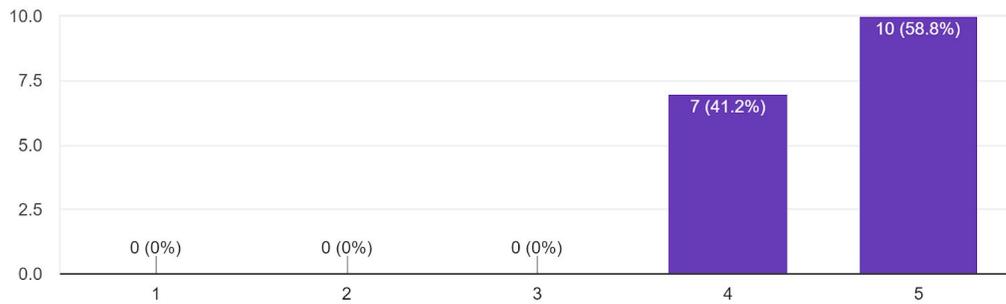
Was the website user-friendly? (e.g. easy to understand, navigate etc.)

17 responses



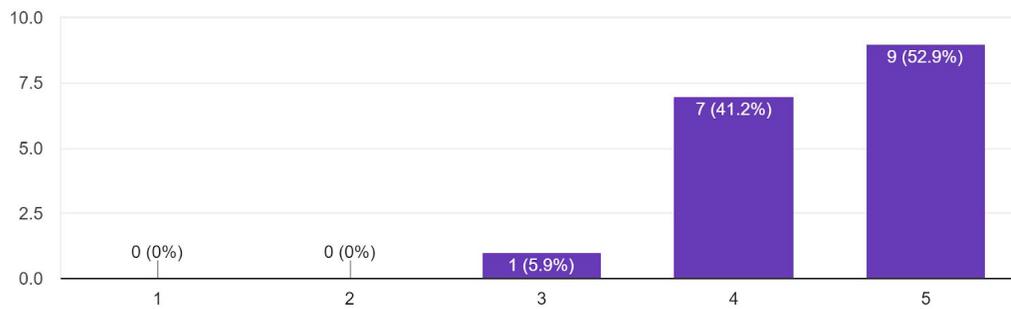
Were you able to learn more about the environment?

17 responses

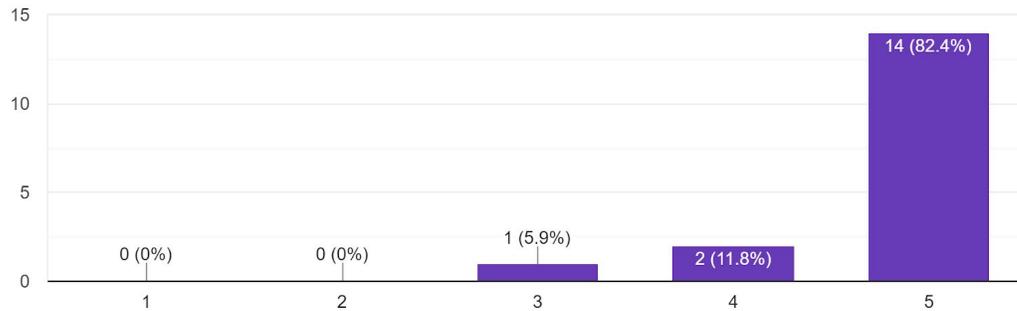


The infographics are aesthetically appealing and easy to understand

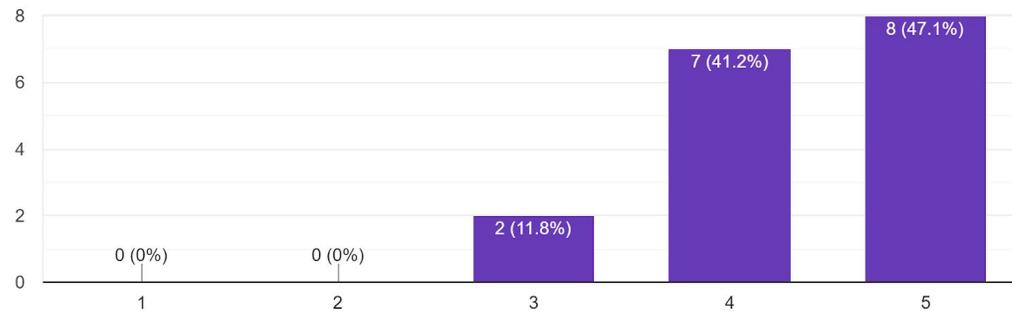
17 responses



The DIY videos were easy to understand and follow along  
17 responses



Did you enjoy the quiz?  
17 responses



Some feedback given was that our infographics were too wordy. We responded and made amendments by reducing the amount of words as much as possible. One respondent found it difficult to follow along the video at certain points, but he was still able to complete the product. We have categorised our videos according to the difficulty of the product so that those who have trouble following the video can start from the lowest level of difficulty

## **4 OUTCOME AND DISCUSSION**

At first, we only created a single DIY product as we wanted to focus more on our other resources. In the end, we decided to produce a wider range of DIY videos such as an upcycled phone charging holder and outdoor pillow as such videos would be able to better cater to the preferences of people from different age groups. We felt that certain limitations of our project were in the aspect of publicity and outreach. According to our survey results, an Instagram page was not a preferred resource for learning. However, after going through the project, we felt that we were not able to expose environmental protection and upcycling to a large group of people and our pilot test results for our website was limited. As such if we were to improve our project we would create an Instagram page so that we can share tips and facts on our page as well as link our website on our page so that more potential users will be able to access it. We would also try to create more complex and practical DIY Products with tutorials so that we could engage a wider audience.

## **5 CONCLUSION**

Due to the COVID-19 pandemic, we were unable to conduct physical lessons with the primary school students which affected the effectiveness of the lesson, so we had to adapt and move it online. This has taught us the importance of hard work, resilience and teamwork, which were essential in order to overcome the many challenges COVID-19 has thrown at us. We also learnt how to plan our time effectively due to clashing schedules and conflicting commitments. Distributing the workload also helped in this aspect.

## 6 ACKNOWLEDGEMENT

We would like to thank Project Athena for giving us the opportunity to work with Faith Acts and helping us to guide the children during our online lesson

Ms Rachel, the main coordinator for KIDSLEAP Programme, for liaising with us and giving us the approval to hold our Upcycle workshop as well as providing us with invaluable feedback after our lessons.

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